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David Heymann—WHO's public health guru

Interviewed by Haroon Ashraf

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David Heymann is the Representative of the Director General for polio eradication at the WHO. Before that he was Executive Director of WHO's communicable diseases cluster, which includes WHO's programmes on infectious and tropical diseases, and he led the public-health response to severe acute respiratory syndrome (SARS) in 2003.

In the mid to late 1990s, Heymann was Director of WHO's programme on emerging and other communicable diseases, and before that was the chief of research activities in WHO's global programme on AIDS.

Before joining WHO, Heymann worked for 13 years as a medical epidemiologist in sub-Saharan Africa on an assignment from the US Centers for Disease Control and Prevention (CDC). He worked on a range of projects including improving control and surveillance of infectious diseases, with special emphasis on the childhood immunisable diseases including measles and polio, African haemorrhagic fevers, poxviruses, and malaria.

While based in Africa, Heymann investigated the first outbreak of Ebola in Yambuku (former Zaire) in 1976, then in the second outbreak of Ebola in 1977 in Tandala, and in 1995 directed the international response to the Ebola outbreak in Kikwit. Before 1976, one of Heymann's first public-health jobs was in India as a medical officer in the WHO smallpox eradication programme.

TLID: Your academic career began at Pennsylvania State University in 1966 with a BA in science. You then went to Wake Forest University in North Carolina to become a general practitioner but decided to study public health.

DH: That's right. What changed my mind was my senior year elective. I went on Project Hope, a hospital ship that went to various countries, where we trained local medical students and nurses. My rotation on the ship was in public health and that's when I became interested in this subject.

TLID: After university you were to be drafted into the Vietnam War but instead joined the US Public Health Service. What did you do there?

DH: My first assignment was on a coastguard cutter ship patrolling the Mekong Delta, Vietnam. When the war ended I moved to an icebreaker ship called *Northwind* and went to Antarctica for a year. Every year *Northwind*, its sister ship *Southwind*, and a convoy of supply ships, travelled to a US scientific base in Antarctica. But in my second year back at the coastguard training centre in California where I was doing general practice, I realised I wanted a career in public health.

TLID: You went to the London School of Hygiene and Tropical Medicine in 1974, and after completing your diploma in tropical medicine and hygiene you joined a smallpox eradication programme in India where you worked as a medical epidemiologist.

DH: I thought I would go back to the USA and complete my residency but I went to India instead. Here I met Bill Foege, who at that time was assigned to the smallpox programme from the CDC—he eventually became the Director of the CDC. He was a great influence on my career and directed me to the CDC's epidemic intelligence service (CIS).

TLID: You joined CIS in 1976. You were in Atlanta for your first year of training but wanted to do something different in the second year, is that right?

DH: I did something considered very unusual for the CIS course, I went to Africa. CDC trainees usually go to a division of CDC in Atlanta, or to a state epidemiology office. I had been working on the first outbreak of Legionnaires' disease in the USA and heard Ebola had broken out in Zaire. I wasn't on the first team out there because I didn't have enough experience. I stayed in Atlanta on the support team, and one of the first things I did was go to NASA in Houston. We needed some conveyance that could bring infected people back from Africa to the USA in isolation.

At NASA we found a trailer that astronauts used when they came back from the moon. They would go from their capsule to this trailer, and wait until it was clear they were not infected with anything. NASA sold this trailer to the CDC for US$1, and we took it back to the airforce base in Atlanta.

Later that year I finally got my chance to go to Zaire. But public health is all about taking chances when you get them. This post was something not many people wanted because it was over Christmas. I was not married so I took advantage of the situation.

WHO

On the smallpox trail

TLID: After Ebola you came back to CDC but were soon off to Cameroon where you were based for 5 years?

DH: I was working for Organisation pour la Coordination de la Lutte contre les Endemies en Afrique Centrale (OCEAC). During that period I did several things including studies on yaws in pygmies, another Ebola outbreak, and helped develop WHO's expanded programme of immunisation. I also went to Algeria and various countries in west Africa.

TLID: In 1977 you become chief of OCEAC's epidemiology service. This was your first regional management job. How much of a step up was it from your previous assignments?

DH: Well, I had previously served as a coordinator for smallpox eradication. But in Yaoundé this was the first time I had a coordination role for five country's activities.

TLID: What were the challenges of this huge post?

DH: I was fortunate because I was seconded by CDC and backed by a CDC budget. The major hurdle was the speed at which targets were expected to be achieved. And the reality was that these diseases had been in Africa for many, many years and in 5 years it was not possible to meet those targets. It was possible to show in some demonstration areas that those targets could be met.

I'm not sure that during those 5 years I left a lot of skills behind. I might have been too achievement orientated, and not willing to transfer as many skills as I could have and risk those targets not being met. This is a big danger for anyone in international development.

TLID: During this time you helped develop an African regional training course for epidemiology. This must have been a major body of work?

DH: It was and for that CDC provided a trainer who helped me. And we developed modules that are still being used on some international courses, such as a training programme on Ebola.

TLID: After OCEAC you were going to join a CDC communicable disease programme based in Malawi but had the chance to work for WHO for the first time. You then went to Malawi where you worked alongside the government's ministry of health. How did you find this experience?

DH: I was seconded to WHO to join a smallpox eradication programme, which was studying the epidemiology of human monkeypox in west and central Africa. And I worked on that programme for 1 year. Then I worked in Thailand for WHO, and tried to develop a methodology for surveying populations to get an understanding of what children were dying from.

TLID: You then went to Malawi where you were working alongside the government's Ministry of Health? How did you find this experience?

DH: I had recently got married and was looking for a stable position where I could work in a country but travel a certain amount. Malawi wanted to concentrate on malaria because it had a major problem with drug resistance. We developed a process, still being used today, to determine when they needed to change antimalarial drugs to a new drug, to monitor the impact of their malaria activity, and to better understand the dangers of malaria especially for pregnant women. That was a 5-year experience in a government, developing skills, and being able to leave a monograph that showed how one country was addressing malaria, and leaving behind a research project that CDC still maintains on malaria in pregnancy.

TLID: Can you explain to me how you work?

DH: My analysis of myself is that I am a better builder than I am a maintainer. And so when there is a challenge or a chance to build I like to do that. When things became routine in general medicine I wanted to move on. I always thought that if I stayed in clinical medicine I would stay in the emergency area where you get a very sick person and you discharge, admit, bury, or send them off to the hospital clinic.

TLID: You made a major change at this point in your career and switched your attention to HIV?

DH: When the Malawi project ended my advisors at CDC told me I needed to get mainstream management experience. One of my advisors used the term that I was an epidemiological roustabout! So the choice was to go back to Atlanta or find something internationally. At that time I had done some work with Jonathan Mann, who had been working with HIV in Zaire. When he came to Geneva to set up WHO's AIDS programme he offered me a role.

TLID: As a result you set up WHO's Office of Research. What was this unit trying to do?

DH: The unit was trying to get a better understanding of the epidemiology of AIDS in developing countries. It was trying to make sure research on things like vaginal microbicides, vaccines, and other things were being facilitated by WHO. We looked for research gaps where WHO could add value—for example, by creating a standardisation process for HIV test kits and HIV surveillance.

TLID: You were doing things where there was no precedent? How do you work in that sort of environment?

DH: WHO has access to the world's best scientists. You call these scientists together and figure out where you are, where you need to go, and what the gaps are WHO needs to facilitate. I have always said that if you invite an expert to a WHO meeting it is very rare that they say no.

TLID: At this time the number of people with HIV/AIDS was growing every year. Was this period your toughest challenge?

DH: Yes, but it was not as much of a challenge for me compared with the people who worked on the country programmes trying to set up prevention projects. I was not involved at country level implementation. Our challenge was to keep people working together; it was a very interesting and difficult time but Mann was an excellent leader.

TLID: You rose quickly through the ranks after working on this programme?

DH: I was in the right place at the right time. From the research unit I went to the sexually transmitted diseases unit, which had been neglected. And then was asked by the Director General to return to Africa and tackle another outbreak of Ebola. Going to that outbreak was a turning point in my career. This was an active outbreak—the two previous outbreaks I handled in Zaire were not active. So after working on that the Director General asked me whether I could set up an emerging diseases programme.

TLID: This programme seemed to involve remoulding previous projects?

DH: That is correct. And this is what I like to do best. At this time there was an imbalance in participation internationally in the control of emerging and re-emerging infectious diseases. The burden was falling mainly on the USA. One of the major achievements was to set up a global funding mechanism. That broadened WHO's response capacities tremendously.

TLID: You then moved from being the Director of this division to becoming the Executive Director of the communicable diseases cluster.

DH: There was a change in the Director General. When Gro Harlem Bruntland joined she interviewed staff to see if she wanted any of us working with her in an executive position. And I was selected by her as she brought together all the different infectious disease programmes into one cluster. This was really a privilege because all these programmes working together were really powerful.

TLID: Towards the end of your stint in this division severe acute respiratory disease (SARS) happened. Was this a difficult challenge bearing in mind the global media interest it gathered?

DH: There had been intense media interest in the Ebola outbreak in the former Zaire in 1996. We got tremendous media experience from that incident. When SARS came we knew the media had to be properly informed. Our response to SARS was actually a culmination of the partnership idea where each country had a role to play. This led to the 120-country, alert and response network, which was ready when SARS came along.

TLID: You handled SARS very well but there were failures. China didn't pull its weight and was hiding information about the scale of the outbreak. Could anything have been done better?

DH: Countries are not obliged to report diseases that are occurring in that country. So in our emerging diseases programme our idea was to change the culture so that countries could see the advantage of reporting. I think the norm is changing internationally and even China, which had difficulty in reporting SARS, is learning how to work with their provinces so they can better report in the future.

TLID: And the major lesson from SARS?

DH: The major lesson was that international scientists, whether they are clinicians, epidemiologists, or virologists, are really willing to share information for the better public good. The world can pull together on a new infectious disease. They are also willing to let WHO make recommendations that might interfere with their economics but are felt necessary.

TLID: After SARS, you decided now to move into the field of polio—you clearly didn't want to take it easy?

DH: Well, it was another challenge. Public health is full of challenges and right now this one is uphill. Polio is close to the end but it is not right there. And it has been stuck for the past 3

years. Not because of anything more than a lack of political will at the very top level in the countries where polio exists. But the job there is to increase political will, and deal with problems such as the recent situation in Kano, Nigeria.

TLID: Some commentators have said the recent polio campaign has been going "two steps forward, one step back". Is that how the past 3 years have felt?

DH: If you look at an eradication programme, the countries that are easiest to deal with finish first. We were left with major countries like India, Pakistan, Niger, and Nigeria. Nigeria and Niger are probably linked in their problems because some people there were afraid of the vaccine. But when you get to the end, to quote a Japanese proverb, "the first 99 miles are easy but the last mile is very difficult". And that is where we are now.

TLID: The eradication programme is in its final stages. Is your role to also look post-polio?

DH: My day-to-day role is two things. I ensure heads of state and ministers of countries are on board and that takes two or three visits every few months. Second, I work with advisory groups to get policies established and get started resolutions that need to go to the world health assembly. So once polio transmission is interrupted we have a post-polio programme.

WHO/S

Even ministers are hands on in polio campaign

TLID: What is the situation today?

DH: Strong progress has been achieved in Asia (India, Pakistan, and Afghanistan), with 105 cases so far in 2004, compared with 240 for the same period last year. The continent is on track to successfully stop polio by the end of the year.

However, in west and central Africa, suspension of polio immunisation campaigns in northern Nigeria set in motion a polio epidemic that has seen 12 previously polio-free countries re-infected with the disease. With 735 cases across the region, west and central Africa today accounts for nearly 90% of all new cases worldwide.

To combat the epidemic, and with financial support from Canada, Africa has united in an unprecedented way. On October 8, 23 countries across the region launched the continent's largest-ever immunisation campaign. More than one million volunteers and vaccinators went house-to-house, to hand-deliver the polio vaccine to more than 80 million children. The second round of the campaign will be launched on November 18, and with further similar activities planned throughout 2005, Africa could be polio-free within the next 14 months.

TLID: What can you tell us about the post-polio strategy?

DH: The major committee decision that we needed in September was whether or not oral polio vaccine (OPV) should be continued after eradication. The answer was no, it has to be stopped as soon as possible after eradication. Reducing the risks of polio during and after OPV cessation must be achieved through the immediate and simultaneous development and phased implementation of strategies, covering five major areas of activity: containment and control of poliovirus infectious materials including wild and vaccine-derived polioviruses in laboratories and vaccine production facilities; continued high-quality surveillance for poliomyelitis and poliovirus, and maintenance of systems for outbreak detection and investigation; coordinated cessation of OPV use, including recall and destruction, or centralised safe storage of distributed OPV stocks; continued capacity for outbreak response including establishment and maintenance of polio vaccine stockpiles; and finalisation and implementation of national decisions on long-term polio immunisation policy.

TLID: Do you hope the health structures developed for polio eradication will remain active for other immunisation projects?

DH: We hope they will stay but all are funded by polio resources. So the challenge is to get those funded by other activities, not only polio and not only immunisation, but by activities such as influenza surveillance and vaccine-response issues. We developed a new strategic plan last year and part of that plan is mainstreaming the polio investment into other activities.

TLID: The polio programme clearly takes up most of your time, but have you considered what you might do next; perhaps retirement?

DH: Well, I don't know what I will do next and its polio for now and until we are sure that polio transmission is interrupted. And then it will be something else. Public health is about taking the opportunity when it presents itself and moving ahead with it. I'll be ready for the next challenge when polio is done.